



Traffic **Infra** Tech

Hyderabad Metro: Redefining the City



4th Edition



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Hyderabad Metro

Bringing in Lifestyle Changes

Hyderabad Metro Rail, a PPP project involving the Government of Telangana and L&T Metro Rail (Hyderabad) Limited (LTMRHL) is poised to give Hyderabad, India's IT and pharmaceutical powerhouse, a people-friendly, green, seamlessly connected intermodal mass transit system.

The project, one of the world's largest PPP Metro project, aims to bring lifestyle changes in Hyderabad and transform it into the nation's preferred city. Hyderabad Metro Rail (HMR) will be integrated with existing railway stations, the present suburban railway network (MMTS) and bus stations. The 72km long, elevated metro will run through three high density corridors of the city and will have modern, high-class metro stations every 1km of the route. But HMR is not a simple Metro, rather it is an urban redesign and rejuvenation effort designed to transform Hyderabad into a people friendly green city. The 'Transit+' concept on which it is based provides last mile connectivity with Non-Motorised Transport (NMT), pedestrian facilities & street furniture, eco-friendly stations with natural ventilation, sky-walks, ramps, escalators, elevators and a host of commuter-friendly facilities.

There will be a total of 66 stations along the three corridors. Parking facilities and circulation areas are being offered at strategic locations along the corridors on land provided by the state government.

The project won the best Global Engineering Project of the Year 2013 award given by the Global Infrastructure Leadership Forum, from among the world's top 100 infrastructure projects at the Forum's 6th Annual Conference held in New York.

It also won the RoSPA (Royal Society for Prevention of Accidents) Gold Award for Construction Safety and Occupational Health for the year 2013 at Glasgow, UK, Metro Rail Project of the Year 2013 from Construction Week India, Mumbai as well as the American Concrete Institute (ACI) Award for the year 2013 at Mumbai

A metro rail project is usually thought of as an engineer's paradise, but at HMR, the emphasis is on building a People's Project, in spite of some remarkable engineering achievements that the project boasts of, such as the unique cantilever design, the first metro to have this in India. Hyderabad, the fifth most populous city of India with a population of about eight million people, has witnessed a enormous growth of private vehicles due to which it has been experiencing tremendous pressures on its transport services, especially with





the absence of sidewalks. Thus one of the principal aims of HMR project is to make Hyderabad a happier city for the citizens. This begins by making it a city for citizens and not cars. The project will make it a city for children, senior citizens, differently abled and women, providing gender equality in its services. It will provide Better Air Quality due to the sharp reduction in fossil fuel usage, quality public spaces. Improved accessibility and affordable transportation can enhance productivity.

Bus-bays and auto-bays will also be constructed beneath the metro rail stations, besides green plantation and other concepts as part of a strategy of landscaping the areas under the viaduct of metro rail corridors. HMR plans to have exclusive women metro rail stations besides a few stations catering to youth and farmers.

HMR has been inspired and draws from the best of mass transit systems the world over. [NVS Reddy, Managing Director, Hyderabad Metro Rail Limited](#), and his team visited cities from London

and Paris to Bogota, Singapore, Hong Kong and Bangkok to study their metro systems. At Bogota, the mayor Enrique Peñalosa had created quality public space, provided good connectivity and introduced bicycle stations at the bus stops, transforming one of the worst cities into one of the best. In London, the team found that the commuter did not have to walk more than five minutes to take the metro. HMR is also implementing Singapore's 'one-hour city' concept where no journey within the city will take longer than one hour. A major inspiration for HMR's skywalks came from the BTS Skytrain elevated mass transit system in Bangkok. In case of the Skytrain, after construction, it was observed that the space between the elevated tracks and road below was unused. This space was then used to construct skywalks that connected the mass transit stations to retail, entertainment or educational facilities.

HMR uses a similar design and concept. The tracks are situated at a height of 8.5m height while the

clearance required for the road below is 5.5m. It is in the 3m space between the two that the skywalks are being built.

Engineering Features

The metro stations' cantilever type design, mentioned earlier, has each station resting on just 10 central pillars, a spine & wings and no side-pillars – the first such design in India. This design avoids portal structures and tunnel effect over the road at Metro stations and gives a clear, open view of the road below.

The metro would have check rails, also called restraining rails, procured from Tata Steel, France, to minimise wear and tear of the main rails, and to prevent trains from derailing while negotiating sharp curves. Another special feature is the Track Master, a unique instrument for checking the parameters of tracks and to enhance the quality of track installation. This has been procured from M/s Trimble USA. This instrument is being used in India for the second time after



One of the principal aims of HMR project is to make Hyderabad a happier city for the citizens. This begins by making it a city for citizens and not cars

Chennai; L&T is the first to introduce this technology in India, both in Chennai & Hyderabad. Another first is the simulation study based track design used for the project – the first time this has been used for a metro project in the country. In this process, before the tracks were actually designed, the probable speed of train in a particular stretch was determined by carrying out a simulation study. Based on this data the track was accordingly designed only for that particular speed in that particular stretch. This avoided the need for designing the track for much higher speeds than required.

Further, this process offers better ride comfort to the passengers, reduces rail and wheel wear as well as loading on the Viaduct and increases the productivity in track installation.

HMR is a completely elevated Metro Rail project. Underground construction has been avoided because of the tough rocky terrain conditions of Hyderabad and also for energy

efficiency, cost considerations & better economics of the elevated system. The difficult terrain and crowded spaces have been tackled with better engineering solutions and fine tuning of the alignment. The construction method is PSC segmental method and 70% of the construction is through pre-casting.

A prominent feature of the Hyderabad Metro is its emphasis on intermodal integration. The metro will be integrated with existing rail terminals, the city's suburban rail MMTS stations & bus depots and will also link to a new bus rapid transport (BRT) system throughout the city. There will be "Merry go round" feeder buses between metro stations & catchment areas, with seamless travel being ensured between these different modes and the Metro by the facility of travel on the same ticket. Unlike most mass transit systems in the world where intermodal connectivity is retrofitted, HMR will have built in intermodal connectivity.



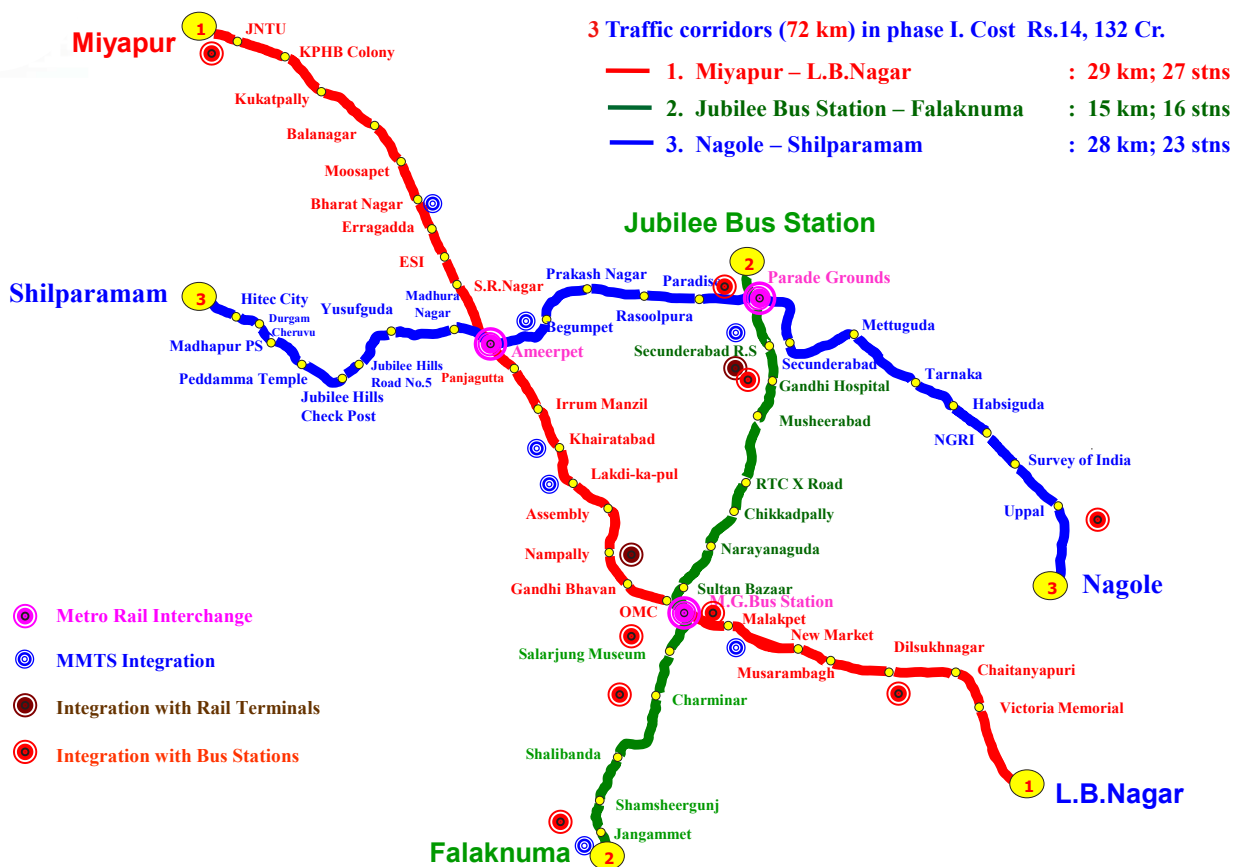
buildings, commercial establishments, shopping complexes, and malls, thereby eliminating the need for commuters to go down to the roads, thus relieving congestion on the road. There will also be separate bus-ways, auto-ways and car & two-wheeler parking areas and street furniture at the ground level.

HMR stations have been designed with stringent security considerations, making security resemble the security at airports. The IP based Comprehensive Perimeter Security System includes CCTV cameras and other surveillance equipment, sensors and alarms for monitoring of unmanned areas, access-controlled passenger entry and baggage checking systems, installation of intrusion detection systems, onboard surveillance through video recording in trains and

NMT and last mile connectivity facilities include bicycle lanes, footpaths and special pedestrian facilities including sky-walks below the viaduct. Cycling will be encouraged and free

bicycles will be available at the metro stations. About 200 skywalks will be built in the city as a part of the project. These skywalks will connect the metro to schools, hospitals, government

Hyderabad Metro Rail Corridors



anti-sabotage checking measures. The stations will be provided with fire protection and detection system.

A Unique Financial Model

Metro Rail projects need massive investment and take a long time to break even. Many incur losses for quite some time before they begin making profit. But HMR, which has a total project cost of ₹14,132cr, has a financial model that puts minimum burden on the taxpayers’ money and the government. Out of the total cost, just ₹1,458cr (10%) has been provided by the Union Government as one-time capital grant under Viability Gap Funding. The remaining ₹12,674cr is being raised entirely by the concessionaire L&T Metro Rail Hyderabad with 20% Equity (₹2,768cr) and 70% of debt (₹9,906cr). Thus 90% of the cost is being borne by the private sector partner of the project while 10% is financed by the Central government. The state government is bearing the cost of land acquisition, utility shifting, etc. The concessionaire will get an estimated 55% of its revenues from passenger fares. Another 40% has been estimated to come from lease revenues from the properties developed by L&T Metro Rail as a part of the Transit Oriented Development (TOD) project being developed at metro stations and other parts of the HMR corridors. The remaining 5% will be from sources such as advertisements and parking charges. L&T Metro Rail is being allowed to commercially exploit the air space over the metro rail facilities and TOD projects developed by it. For the duration of the Concession period, it will get the lease rentals from these properties developed by it, which will subsidise the losses from passenger operations.

The Concession Period for the project is 35 years, extendable by another 25 years, if the concessionaire meets all the requirements and conditions of the Concession Agreement. At the end of the Concession Period, the state



Cantilever type of station resting on the central pillars

government will get the ownership of the entire HMR project.

One of the most common reasons Metro rail projects incur losses is the fact that the metro capacities are usually designed for peak hour peak density traffic (PHPDT). This causes losses during off-peak hours which see comparatively very less commuters. To overcome this problem, HMR has adopted a unique fare structure where peak hour commuters pay a higher fare, more than double, than off-peak hour commuters. The fare and fare escalation formula has been frozen for 15 years. The initial minimum fare has been set at ₹8 and maximum ₹19 with six slabs. There is an allowance for a 5% increase each year for the first 15 years plus 60 per cent of Wholesale Price Index based inflation (in most projects, this is normally fixed at 50 per cent)

Transit Oriented Development

HMR will be the first metro rail project in the country to try out Transit Oriented Development (TOD) built around it. TOD, as the name suggests, focusses on creating vibrant urban communities centred around or integrated around a good quality mass transit system. It will reduce transportation costs significantly for

Hyderabad Metro Rail Project will transform Hyderabad into one of India’s most futuristic cities, with an integrated urban transport plan using inter-modal connectivity and convenient sky-walks. It is an iconic infrastructure project in offing. This project is expected to trigger robust economic activity in and around the city and will generate substantial employment.

companies, while relieving employees of the trauma of commuting to work in highly congested buses and trains, saving valuable time and enhancing quality of life. High frequency of trains will reduce waiting times. Retail establishments in the TOD zone would see a significantly larger number of visitors due to proximity to the metro station.

The total potential for TOD development of HMR is 18.5 million square feet, with 12.5 million at the terminals and 6 million at the metro stations. L&T Metro Rail will develop facilities for a wide variety of sectors in the TOD areas – Office Spaces for IT/ITES and other companies, hotels, service apartments etc for the hospitality sector, educational facilities, hospitals, polyclinics for the healthcare industry, convenience retail stores at metro stations and a multitude of others – warehouses, convention centres, theme parks, entertainment zones etc. These facilities can be either customized for specific clients or can be multi-client facilities.

For the first phase of TOD, L&T Metro Rail has already initiated developments along six million square feet of space at important locations along the metro corridors and is spending about ₹2,243cr. The depots will have options for building large facilities & campus style developments while there will be convenience retail space at the metro stations. The depots and stations will become hubs of economic, social and educational activity in their own right. The generation of revenue by making metro stations hubs of a range of activities will make off-peak transit profitable for HMR.

“I am building a symbiotic relationship between the property developers and the ridership,” says Reddy. “The stations and surroundings become destinations. Malls, multiplexes, theatres, restaurants and food courts, social spaces – everything people want should be available near a metro station.”

Project Consultants

- AECOM - Feedback Ventures Consortium – General Consultant
- Parsons Brinckerhoff – Programme Manager
- Keolis – O&M Contractor
- Halcrow – Independent Safety & RAMS Accessor
- Ernst & Young – Consultant for Carbon Credit
- L&T Rambøll – Design & Traffic Consultant
- L&T Construction – Detailed Engineering
- Skyline Archon (Hyd) Private Limited – Traffic Management
- Louis Berger was appointed independent engineering consultant by L&T Metro, Hyderabad Metro Rail Limited and the then Government of Andhra Pradesh.

HMR Main Features

Rolling Stock

The coaches for the Metro are being supplied by Korean based Hyundai Rotem. Hyundai Rotem was chosen, based on considerations of technology and price as well as cost of maintenance, service and availability of spares. The basic train set is a 3-set Driver Motor Car – Trailer Car – Driver Motor Car (DMC-TC-DMC) set which can be extended to a 6-set Driver Motor Car – Trailer Car – Motor Car – Motor Car – Trailer Car - Driver Motor Car (DMC TC MC MC TC DMC) if needed. The trains

feature Automatic Train Operation (ATO) and Automatic Train Protection. The coaches have a number of other safety features such as alarms for passenger emergencies and coach doors & closing, slip/slide protection for the train wheels, CCTV in all the cars, derailment guard on rails, provision for enabling platform screen doors, smoke & fire detectors and fire extinguishers in driver’s cab and saloon cars. The passenger coaches have longitudinal seats with maximum space for standing passengers and a dedicated space to accommodate wheelchairs for people with reduced mobility. The air-conditioned coaches have humidity



Model coach interior



Metro Rail Mother Depot

The emphasis of HMR is to make Hyderabad an eco-friendly city and at the same time make the project financially viable.

control and LCD TVs which display the route positions dynamically, besides being a source of entertainment and other relevant information. The spring applied air release parking brake system allows energy regeneration during electro dynamic braking, resulting in a substantial saving of energy required to run trains. Each coach also has an electro pneumatic friction emergency brake system and a brake pipe controlled back up security brake system.

Train Depots

There will be three maintenance depots for stabling and maintenance of trains, engineering maintenance vehicles and other associated rail systems. The three depots will be located at Miyapur for Corridor 1, Falaknuma for Corridor 2 and Uppal for Corridor 3. They will be manned round the clock and will be equipped with all facilities needed for efficient and effective maintenance of rail system

assets. Prominent among these facilities are covered & open stabling lines, an automatic train wash plant, inspection and workshop bays, wheel profiling lathe, infrastructure maintenance facilities, electrical & mechanical workshops and electronic repair shops. The main depot cum workshop is being built at Uppal where the overhaul and corrective maintenance facilities for whole fleet will be done. The other two depots have basic facilities for scheduled preventive maintenance and minor corrective maintenance. Every night when trains return from revenue services, they will be thoroughly washed at the train wash plant before being stabled on stabling lines. The maintenance includes a daily internal cleaning schedule to provide clean environment and ambience to passengers.

Before a train is inducted into service, it is inspected and checked thoroughly. The process involves visual inspection by team of engineers & technicians, successful completion of on-board test of vital safety systems and other comfort functions of trains and thorough analysis of data downloaded from the train.

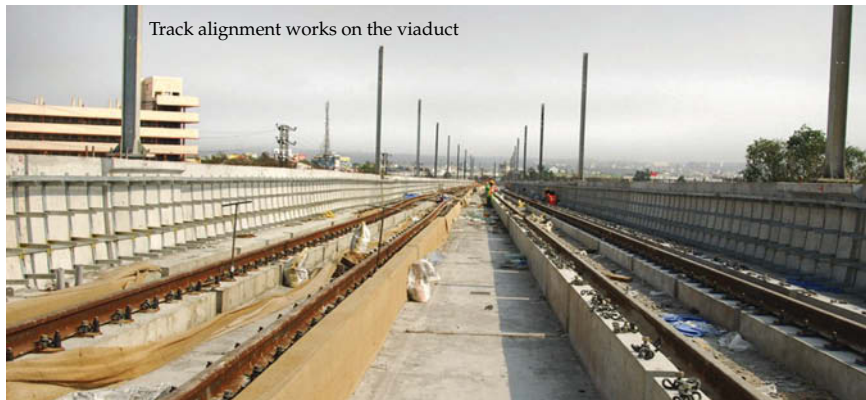
Train Control and Signalling

HMR uses Communication Based Train Control (CBTC) to control trains, the first Metro in the country to do this. The heart of the system is the Operation Control Centre (OCC) at the

Uppal depot which will monitor trains running on all the three corridors. The current locations of all trains running on the three corridors will be displayed and indicated at an overview display panel. The OCC will also have a backup control centre to take over operations in the event of any unforeseen emergency at the OCC. To further ensure fool-proof operations, should there be a highly unlikely failure of the CBTC system, a secondary detection system in the form of an Axle Counter based Fall-Back system is also being implemented.

The normal mode of operation of trains will be in Automatic Train Operation (ATO) mode. In this mode, the Automatic Train Protection (ATP) system continuously monitors safe train operation, and will stop the train in case of any emergency and initiates other action as needed. Besides this, Passenger Emergency Stop Plungers are provided on each platform and in the Station Control Room (SCR) to stop a train immediately in case of emergency. In necessary situations, the trains can also run in degraded or lower performance modes such as RM mode and Cut out mode.

All important signalling equipment on the stations, on the trains and the wayside such as the Computer Based Interlocking (CBI), wayside ATP have a high degree of redundancy built into them to avoid unnecessary disruption of services.



Track alignment works on the viaduct

Ticketing - Automatic Fare Collection System

An Automatic Fare Collection System based on Contactless Fare Media Technology will be used for dispensing tickets to commuters. The AFC System will have Automatic Gates, Ticket Vending Machines, Add Value Machines, Ticket Office Machines, Ticket Readers and Portable Ticket Analysers. The system divides the stations into paid and unpaid areas, which will be separated by automatic entry / exit gates and fencing. The system accepts banknotes, coins, credit/debit cards and smart cards for payment. Tickets are of two types: Contactless Smart Card (CSC) and Contactless Smart Token (CST). Contactless Tokens are available for travel between fixed stations and could be purchased for single or return trips, more for non-frequent users.

Contactless Smart Cards are stored value cards and are available in the form of either monetary (e-Purse) or non-monetary (Pass) or a combination of both; more suited for regular commuters. Some of the passes planned are Tourist Pass, Trip Pass, Daily Pass, Weekly Pass, Monthly Pass and Holiday Pass.

Safety, Fire Detection and Suppression

As part of a strategy of fire prevention and early detection, HMR has provided an Analogue Addressable type Fire Detection & Alarm System at all stations. This system detects

presence of fire and initiates Fire Suppression through Gas Flooding Systems, fire hydrants and Automatic Sprinkler System, protecting critical railway equipment from fire. In the event a fire cannot be suppressed early, portable fire extinguishers of different types – Carbon dioxide, ABC & DCP are used to extinguish fires in the early stage to avoid major losses. To extinguish fires inside the critical power supply panels located in the sub-stations a carbon dioxide Fire Trace System will be used.

Photo luminescent safety signage has been installed to guide commuters for safe escape in cases of fire and power failure. This will also be useful in locating fire-fighting appliances in case of emergencies even in darkness.

Power and Lighting Systems

Electrification for overhead pantographs of trains / locomotives is being done through 25 kV, Single phase, 50 Hz AC power. The 132KV power received from the power stations by receiving stations will be stepped down to 3-phase 33KV for lighting and other general purposes and to single phase 25KV for traction. The OCC at Uppal Depot will monitor and control the entire power supply system and traction system equipment through Supervisory Control and Data Acquisition System (SCADA). To minimise interference with communication lines, booster transformers are being provided throughout the corridors at specified locations.

Energy saving, low loss, high efficiency fluorescent lamps with high power factor will be used at all stations. The lighting system will have three illumination levels: Emergency level (33%), Off-peak hour(66%) and Peak hour (100%).

Passenger Elevators suitable for physically challenged with Electric Traction and gearless motor having VVVF Control are being provided in all stations from Street level to concourse level and concourse level to platform level. Escalators suitable for semi-outdoor installation are also being provided in all stations. Each station will have a steel escalator from street level to concourse Level and glass escalator from concourse level to platform level.

Telecommunication System

HMR has a state-of-the-art Telecommunication System which ensures continuous communication between the OCC, Train Operators and Station Controllers. The modular nature of the system and high redundancy built into it due to the distributed architecture ensures that in event of failure of the link between the OCC and a station, all station communication equipment continue to operate independently in local mode. All train related information will be displayed and broadcast in different languages like Telugu, English and Hindi. There is an Emergency Call Point / Help-point phone system at stations to assist passenger in case of any help required.

HMR, which began in 2012, is expected to be fully operational in 2017, with the first stage of 8km (Stage-I) scheduled to be inaugurated by March 2015.

However, some challenges need to be still overcome, such as the recent proposal to change some parts of the alignment of the metro and to shift some portions underground.

Rajmohan Kurup

“We are not building a metro: We are redefining Hyderabad”



NVS Reddy
 Managing Director
 Hyderabad Metro Rail Limited

As is known, Hyderabad Metro once completed will be one of the best mass rapid transport projects in the world, especially built on the PPP model. There are two hundred mass transit systems in the world and out of these, less than half a dozen are built on this model. Mostly, these are government funded and managed projects for the survival of the city. Beyond a certain point, railways cannot handle mass transport and roads also have their limitations. In transportation engineering, it is typically said that one rail line is equal to seven bus lanes or twenty four car lanes. No city can afford twenty four car lanes; and in terms of energy efficiency, metros are five times energy efficient, but are highly capital intensive with long periods of construction.

Out of the top two hundred mass transport systems in the world, only the ones in Singapore, Hong Kong, Tokyo, and Taipei are making money; the rest are all heavily funded and subsidised by the government. Originally even our project was also termed as a government project by the Delhi metro. So after studying all these and looking at a few successful financial models, we adopted a similar model here. Ground floor & the stations will be used for metro rail, and the remaining for the commercial utilization. So in our revenue model, 50-55% of revenue is coming from passenger fares, 45% from property development that we have allowed the concessionaire today and 5% from advertisements and other miscellaneous features like parking etc. Whatever is constructed by the concessionaire cannot



be sold; the company can only lease it out during the concession period. At the end of the concession period, the whole facility will come back to the government.

The concession period is for an initial period of 35 years which can be further extended to 25 years (i.e.; 35+25). Within five years of the concession period, one will see a sea change happening. The main challenge is how can you make the entire project financially viable? There are going to be initial losses in the first six to seven years, but it has to be financially viable in the long term. When we studied the system, we found that in mass transit system, you have to design the system for peak hour traffic but during non-peak hours your assets remain idle. This is a challenge, and to solve this problem, we adopted a strategy: Firstly, increase the peak period. For some people, money is important, and for others time is important. So we have given a special provision in our concession agreement, where up to four hours a day is declared as peak hours with 25% hike in fares. If you declare four hours as peak hours, then you will have to double the non-peak hours i.e. eight hours. And thus during this period, you will have to give 25% discount.

Hyderabad Metro has given us an opportunity to redesign the City as people-friendly, green and an attractive destination. So, if we are able to provide all required amenities for people at the metro stations itself, it will reduce the congestion on roads. Many concepts are taken from different metro stations around the world. Initially, even Bangkok had an elevated metro like ours. They realized later that there was a lot of unused space underneath. As per IRC (Indian Road Congress) standard, 5.5m height is required for the track. However, the height in Hyderabad Metro is 8.5m. There would be skywalks



in the remaining 3m space, directly connected to malls, schools etc. In all our metro stations, we have escalators and elevators and four entry points. The design of the stations are different from one another and there are stations at every one and half kilometer on an average.

At one point of time, the shopping malls were slowly crumbling because there was no accessibility and there were traffic congestions. Initially people were opposing the metro train because they believed that the metro would bring in additional congestion. And on top of all, we are barricading the roads. It is now understood by the citizens that the metro stations will provide

better connectivity through skywalks to buildings, schools, colleges, hospitals, workplaces and residential buildings. These places are now accessible, which means we are increasing the efficiency of the city. So when you get down from the metro station, you have to just walk a bit. We are using this as an opportunity to rejuvenate the city as eco and people friendly.

We will be providing facilities like bicycle stations to help with last mile connectivity. We are going to have street furniture as well as open spaces, so if you provide all these day-to-day requirements, it will help decongest the system and increase the productivity of the City.



“The challenges are many, but we will keep the timeline”



V B Gadgil

**Chief Executive and MD,
 L&T Metro Rail (Hyderabad) Limited**

The major challenge in this project has been the availability of land in the urban area. Hyderabad, which is a 400 year old city is one of the oldest cities with heavy traffic congestion. Hence there were people who were skeptical about the project taking off. There were concerns regarding safety and traffic issues, which was a big challenge for us. We chose construction methods that were quite unique in certain places; 70-80% of the work was done in pre-cast yards. These yards are at two locations near Hyderabad.

Major technological challenges were the congested roads as well as their alignment (both vertical and horizontal). Even the DPR (Detailed Project Plan) was also not updated. Most of the projects in India face this issue: there is a long gap between the DPR and the time taken for execution. Cities don't stop growing, so even the city drawings were old. We had to revalidate our position going back and forth because new buildings, flyovers etc had come up. Many working assumptions

had to be constantly revised and changed, so technically it was quite challenging.

The third challenge was the underground utilities. We discovered that during the Nizam's time there were no records regarding water lines, drainage system etc. So when we did our survey, we had to take a lot of precautions and take into account these factors so that we were not damaging the utilities. We had only two options, either to divert them when they come our way or change our engineering to suit the situation where there is no possibility of diversion. And the last option that we had was concurrent engineering which is very time-consuming and causes delays. Unlike in road projects, here you cannot change the alignment as you wish. The horizontal and vertical alignments are technologically driven which cannot be changed.

Financially, it was a very big challenge because it is based on PPP model. Cost automatically becomes extremely important for private enterprise, and going back to last three years, the economical parameters have not been very stable. Bank interest rates continued to go up; there was double-digit inflation rate and unprecedented devaluation of rupee. Another complication was the difficulties in getting the right of way and the demolition of buildings.

Moreover, we are investing ₹15,000-16,000cr and to make this project viable, 18.5 million sqft of real estate has to be developed. Nowhere in the world has a standalone metro been viable; it needs to have additional resources because it is

a mass transit system. And you can not have unaffordable fares because it is for the common man. And these projects are very capital-intensive, and you have to use all the capital upfront. Fares cannot be too high because it has to match other fare rates like buses, rickshaws etc.

Revenue from the developed commercial facilities depend on the growth of the real estate in general in the city. Further, even though, our capacity is to build 18.5 million sqft, the city may not be able to absorb all that at once. There is a 30 year concession period but we have to match the demand and supply of real estate. If we have to complete the metro project in five years, development of commercial space will take 15 years. So, the balance concession period available for us to recover the rents is reduced.

In spite of all odds, we have managed to achieve a lot within the 25 month timeframe. And we are quite sure no other project in India has managed to get completed so fast like the Hyderabad Metro. Of course, safety of the commuters and our staff/workers has been of utmost importance for us and so far our track record has been good. Construction related accidents have been very few, in fact we have received international awards as well. Technologically we have not left any stone unturned to get the latest and best technology in the world. We also aim for making an iconic project because even our brand value is attached to that. Today, the average traffic speed has gone down to almost to 5-6km per hour which used to be around 18-21km per hour before.



Traffic is very chaotic but it doesn't mean traffic speed will increase but the reliability on traffic will increase after the Metro comes in.

The alignment has been done very well; it has also got huge possibilities of extension on the same lines. Hyderabad is a radial city. For example Miyapur can go up to Ramakrishnapuram, one can go from Shilparamam all the way to Gachibowli or financial district. That way, it has got good expansion plan on the existing system to serve the population. Transit-oriented development is a new international concept where you densify the corridors rather than spreading the people and going away. Now people will be closer to the transit area.

Even the concept of parking is changing the world over. If you have an efficient transport system, it should discourage people from getting their car to city center. There is no point in creating metro if people start getting their cars to the station. Then you are not serving the purpose. Now in many places, people do not want the car to ply in the city or business centre. People travel by public transport and park their car outside the city. But people still have a mindset as to whether we are going to provide them with parking facilities in the stations. This cannot be achieved unless there is a good last mile connectivity. The public transport system in a radius of three-four kilometers should pick-up and drop off people at regular intervals. Take for example Mumbai city. The Mumbai suburban train service has been running for several years. One of the success factors has been that when you get down in any station, you opt for a public transport which is affordable, clean and reliable. Having said that, we have also witnessed failures in this model. Take for example the MMTS of Chennai (local suburban trains). There are many stations where you cannot go because there are no transport facilities available.

Even today, people are not familiar with modern facilities. There are people who are still afraid of travelling by escalators; they are hesitant which can lead to accidents. People still stand on the door and hang outside trains. But the metro system is designed for that. You cannot run the metro unless the doors are totally closed. We are also planning to run campaigns on 'Dos' and 'Don'ts', otherwise the whole timetable will go haywire.

India is still status-conscious, not waiting to make the change from private transport to public. But Delhi has proved that wrong. And we believe if you provide a reliable, safe and clean atmosphere, people will change.

The timelines are very sharp and we have to finish the project within 60 months. In spite of delays during the initial 18 months and the many challenges, being faced continuously we are quite confident to complete the project within the set deadline.

L&T Metro Rail's Inclusive Social Approach

L&T Metro Rail's flagship campaign, the HMR Brand Ambassador Campaign aim to make celebrities out of the common man who would be the Brand Ambassador(s) of the project. This unique campaign will culminate by the selection of the Brand Ambassador(s) from Hyderabad (Greater Hyderabad) – a metamorphosis of the ordinary to the extraordinary. The campaign 'My City, My Metro, My Pride' is aimed at creating awareness among the public that this Hyderabad Metro Rail is theirs and they own it. This campaign serves several purposes. It encourages the public to give their views about HMR, brings about awareness of the project, how the project will change their lives, lends an ear to commuting problems and helps in better transport planning.

Another good initiative has been a panel discussion "Metro Rail – The Game Changer for Employee Transportation", involving top industry leaders. L&T Metro Rail organized an Exhibition of Rolling Stock in October 2013. The rolling stock was branded to look like the original train once the project is commissioned. The exhibition aimed to create and develop a sense of ownership among the citizens of Hyderabad regarding the Hyderabad Metro Rail Project.

An Impact Assessment & Awareness Study is also being conducted which will review and analyse secondary information regarding pre and post impact assessment studies related to L&T Metro Rail construction and performance. The study will also document specific shortcomings or disadvantages perceived by the affected population. Also, insights into the perceptions of the people about the relocation and rehabilitation works, impact of the construction processes in particular and the metro rail in general will also be documented.

L&T Metro Rail is encouraging the citizens of Hyderabad to capture snapshots of the ongoing project work and send it to them. A Photo Exhibition and Gallery, is being planned which will showcase these pictures in an art gallery once in three months for the next four years and more. These pictures will later form part of the Hyderabad Metro Rail Museum.

An important social initiative was the Hyderabad Metro Connects the objective of which was to create awareness about HMR project and its symbiotic relationship with cycling and help fund create awareness towards the education of the underprivileged kids in the schools adopted by the Atlanta Foundation.